

Homework 01

Problem 1 (3 points)

Find the value of the expression

$$(2.3)^3 - 1 + \ln(4) \tag{1}$$

where \ln is the natural logarithm (use `log` in Matlab).

Problem 2 (3 points)

Find the value of the expression

$$\sin(2\pi + \pi/4) - \tan(\pi/4) \tag{2}$$

Problem 3 (3 points)

Find the value of the expression

$$e^{\sin(\pi/2)} - \log_{10}(20) \tag{3}$$

Use `exp` for exponent function and `log10` for logarithm to the base of 10.

Problem 4 (3 points)

Find the value of the expression

$$\cos^2(\pi/10) \tag{4}$$

Notice that human/mathematical notation is quite different from what Matlab is expecting.

Problem 5 (4 points)

Find the largest number x (one significant digit is enough) such that the expression

$$(1 + x) - 1 \tag{5}$$

equals to zero. The value of x gives you an estimate of the relative uncertainty of your calculations. Note that x is actually rather small.

Problem 6 (4 points)

Find the value of the expression

$$20/3 - 20 \times (1/3) \tag{6}$$

Algebraically you should get zero. If your result is not zero, please, explain.